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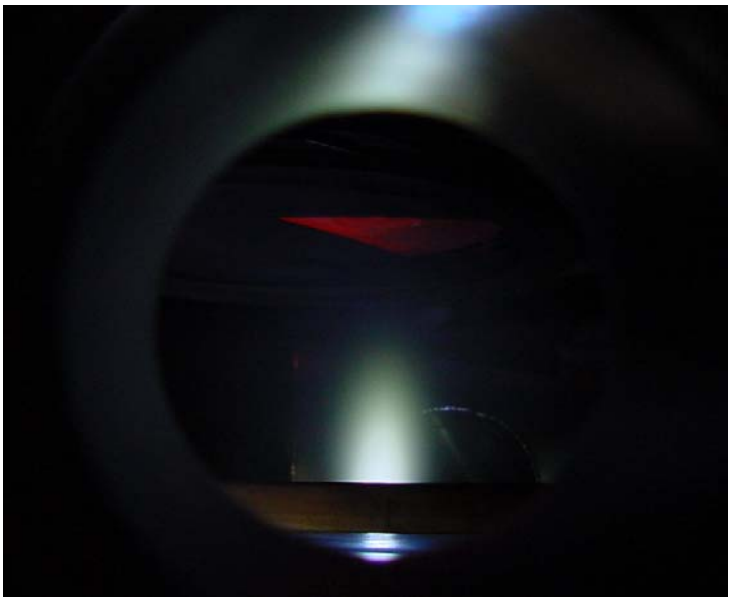
Pulsed laser deposition (PLD) is a unique method for producing thin films of materials of complicated stoichiometry, e.g. metal oxides or metal alloys. Risø National Laboratory has recently established a national facility for making films of large areas. With the present setup uniform films of thickness from a few nanometers up to 1000 nm can be produced on wafers of more than 100 mm of diameter. We have recently also got a grant for a RHEED (Reflected High-Energy Electron Diffraction) instrument which will allow us to produce sandwiches of multilayer films with sharp interfaces at the monolayer level as well as to control the growth rate, film thickness and to determine the lattice spacing.



Plume from a YSZ (yttria-stabilized zirconia) -target irradiated at 248 nm by a KrF-laser in a 0.1-mbar oxygen background gas during deposition of a YSZ-film on a Si wafer. The red triangle above the plume is the hot substrate 85 mm from the target.